

## CLAIMS

What is claimed is:

1. A door stop comprising:  
  
a door stop member configured for mounting on a bulkhead in a marine vessel;  
  
a door engaging member  
  
a striker plate,  
  
means for mounting the door stop member on a bulkhead;  
  
means for mounting the striker plate on a door;  
  
means for securing a door in an open position;  
  
means for releasing the door from the open position; and  
  
means for biasing the door engaging member into contact with the striker plate, thereby preventing the door stop from rattling.
2. The door stop of claim 1, wherein the door stop can be used for doors that open to the left or doors that open to the right.
3. The door stop of claim 1 wherein the door stop is constructed from a non-corrosive metal.
4. The door stop of claim 1 wherein the door stop can be adjusted for use on doors that do not open exactly parallel to the adjacent bulkhead.
5. The door stop of claim 1 wherein the door stop can be operated without bending over.

6. A latching door stop assembly, suitable for use on a marine vessel, comprising:
- a generally tubular door stop member having a first end, a second end, long axis, and a generally hollow channel communicating along the long axis therethrough;
  - the first end of door stop member being configured for connection to a bulkhead;
  - a door engaging member configured for insertion into the second end of the door stop member;
  - means for retaining the door engaging member within the door stop member;
  - means for biasing the door engaging member outward from the second end of the door stop member;
  - a door mounting member configured for connection to a door opposite the door stop member;
  - a door stop striker plate;
  - means for connecting the door stop striker plate to the door mounting member such that the angle of the door stop striker plate relative to the door mounting member is adjustable; and
  - means for releaseably connecting the door stop member to the door mounting member.
7. The assembly of claim 6 wherein the first end of the door stop member has a flanged portion with a plurality of mounting holes communicating therethrough, and the assembly further comprises a plurality of threaded fasteners.

8. The assembly of claim 6 wherein the generally hollow channel communicating through the door stop member has a piston chamber and a rod chamber;  
the rod chamber being located at the first end of the door stop member and the piston chamber being located at the second end of the door stop member;  
the piston chamber and the rod chamber being separated by a piston rod guide wall that extends into the generally hollow channel; and  
the piston rod guide wall has a hole in the approximate center thereof that communicates from the piston chamber to the piston rod chamber.
9. The assembly of claim 8 wherein the door engaging member is a piston configured for insertion into the piston chamber of the door stop member;  
the piston having a bumper end configured for attaching a door bumper thereto and a rod end with a slender rod extending therefrom;  
the rod configured for insertion through a piston compression spring, through the hole in the piston rod guide wall, and into the piston rod chamber;  
the end of the rod opposite the piston being having a hole communicating therethrough for insertion of a piston retention pin;  
a compressible door bumper adhered to the bumper end of the piston;  
the means for biasing the door engaging member outward from the second end of the door stop member is a piston compression spring that is insertable into the piston chamber;  
the means for retaining the door engaging member within the door stop member is a

piston retention pin; and

whereby when the piston is placed in the door stop member such that the piston rod is inserted through the spring, through the hole into the piston rod guide wall and into the piston rod chamber, and the piston retention pin is inserted through the hole communicating through the piston rod such that the piston retention pin cannot pass through the hole in the piston rod guide wall; the door stop member is connected to a bulkhead in a marine vessel; the door mounting member is mounted on a door adjacent the bulkhead such that it is opposite the door stop member when the door is opened; the door stop striker plate is connected to the bulkhead, and the door stop member is releasably connected to the door mounting member; and the piston compression spring biases the door bumper member into constant contact with the door stop striker plate.

10. The assembly of claim 9 wherein the door stop striker plate is generally square and has a threaded mounting post extending from the edge of the plate on one side thereof; the door mounting member is generally flat and has a plurality of connection holes communicating therethrough; the door mounting member further having a flat connecting portion extending at a right angle from one surface thereof; the connecting portion having a mounting post insertion hole communicating therethrough; the assembly further comprising a mounting post nut, a catch member, and a plurality of

threaded fasteners for connecting the door mounting member to a door;

the mounting post nut threaded for engagement with the striker post;

the catch member being a generally rectangular plate having a mounting post hole communicating therethrough at one end of the long axis thereof, and a catch hole communicating therethrough at the other end of the long axis thereof, with the corners nearest the mounting hole being rounded;

whereby when the door mounting member is threadedly connected to a door of a marine vessel the connecting portion extends outward from the mounting member, the mounting post of the door stop striker is placed upwardly through the mounting post hole in the connection portion and then through the mounting post hole in the catch member, the mounting post nut is placed on the mounting post and tightened, and the angle of the door stop striker plate and the catch member, relative to the door, can be adjusted for doors that do not open exactly parallel to the bulkhead to ensure that when the door is opened, one of the flat generally square surfaces of the striker plate is in contact with the door engaging member, and the catch member can be releasably engaged with the door stop member.

11. The assembly of claim 10 wherein the door stop member has an exterior surface with a pair of latch connection posts extending therefrom;

the latch connection posts each having a hole communicating therethrough and extending from the door stop member such that the latch connection posts directly oppose each other;

the assembly further comprising a latch member, a release lever, a release lever retention bolt, a torsion spring and a latch fastener pin;

the latch member having a long axis, a top, a bottom, a shank end, a latch end, a latch nub, and a pair of stop member connection posts;

the latch nub extending downward from the bottom of the latch member at the latch end, the edge of the latch nub corresponding to the latch end having a beveled face and the edge of the latch nub, opposite edge with the beveled face, having a face that extends at a right angle from the bottom of the latch member;

the stop member connection posts extending downward from the bottom of the latch member such that there is one stop member connection post on each side of the latch member and the stop member connection posts directly oppose each other;

each of the stop member connection posts having a hole communicating therethrough;

the latch member further having a release lever insertion hole near the shank end, and a release lever retention hole near the shank end;

the release lever insertion hole communicating from one side of the latch member to the other side of the latch member at a right angle to the long axis of the latch member;

the release lever retention hole communicating from the top of the latch member into the release lever insertion hole, the release lever retention hole being threaded;

the a release lever having an insertion end and a protruding end;

the insertion end being insertable into the release lever insertion hole from either side of the latch member;

the release lever retention bolt being threaded for engagement with the release lever retention hole;

whereby when the torsion spring is placed between the stop member connection posts; the latch member is placed such that the stop member connection posts are adjacent to the latch connection posts and the torsion spring biases the shank end of the latch member upward from the door stop member; the latch fastener pin is inserted through the holes in the latch connection posts, the holes in the stop member connection posts, and the spring; the insertion end of the release lever is inserted into the release lever insertion hole such that the protruding end of the release lever is on the side of the latch mechanism that is away from the hinges of the door; the release lever retention bolt is threadedly engaged with the release lever retention hole such that the release lever is secured in the release lever insertion hole; the door or hatch cover is opened and pressure is applied to the door cover, the door stop striker plate makes contact with the door bumper and compresses the piston compression spring thereby forcing the piston further into the piston chamber while the catch member makes contact with the beveled face of the latch nub forcing the latch member upward and compressing the torsion spring, the latch nub then rides along the catch member until reaching the catch hole at which time the torsion spring biases the shank end of the latch member upward and forces the latch nub into the catch hole; and when the pressure is released from the door the piston compression spring biases the

piston outward from the door stop member the face of the latch nub extending at a right angle from the bottom of the latch member is resting against the interior of the catch hole thereby locking the door in an open position.

12. The apparatus of claim 6 wherein the apparatus is constructed from a non-corrosive metal.

13. A door stop apparatus for a marine vessel comprising:

A generally tubular door stop member having a first end, a second end and a generally hollow channel communicating therethrough;

The first end of the door stop member being attached to a bulkhead in a marine vessel such that the door stop member will be opposite a door in the marine vessel when the door is open;

the door stop member having a spring biased piston retained therein such that the piston can be compressed into the second end of the door stop member;

the door stop member having a torsion spring biased latch attached there thereto;

the piston having a compressible door bumper adhered to the portion of the piston that is biased from the second end of the door stop member;

a door mounting member;

the door mounting member being attached to a door in the marine vessel such that it will be directly opposite the door stop member when the door is open;

a door stop striker plate and a catch member;



the door stop striker plate and the catch member being threadedly connected to the door mounting member and to each other;

the catch member having a catch hole for engagement with the latch;

whereby when the door is opened the catch member can be releasably engaged with the latch; and

the door bumper is biased against the door stop striker plate, thereby preventing the door stop from rattling when the vessel shifts due to waves or other forces.

14. The door stop of claim 13 wherein the first end of the door stop member has a flanged portion with a plurality of holes communicating therethrough, and the door stop member is attached to the bulkhead by a plurality of threaded fasteners that are placed through the holes and threadedly engaged with the bulkhead.
15. The door stop of claim 13 wherein the generally hollow channel communicating through the door stop member has a piston chamber and a rod chamber;
- the rod chamber being located at the first end of the door stop member and the piston chamber being located at the second end of the door stop member;
- the piston chamber and the rod chamber being separated by a piston rod guide wall that extends into the generally hollow channel; and
- the piston rod guide wall has a hole in the approximate center thereof that communicates from the piston chamber to the piston rod chamber.

16. The door stop of claim 15 wherein the piston has a bumper end configured for attaching the door bumper thereto and a rod end with a slender rod extending therefrom;

the rod being inserted through a piston compression spring, through the hole in

the piston rod guide wall, and into the piston rod chamber;

the end of the rod opposite the piston being having a hole communicating

therethrough for insertion of a piston retention pin; and

the piston is retained in the door stop member by a piston retention pin that is inserted

through the piston rod such that the pin cannot travel through the hole in the piston rod guide wall.

17. The door stop of claim 13 wherein the door mounting member is generally flat with a plurality of connection holes communicating therethrough and is attached to the door by a plurality of threaded fasteners that are placed through the holes and threadedly engaged with the door;

the door mounting member further having a flat connecting portion extending at a right angle from one surface thereof such that the connecting portion also extends at a right angle from the door;

the connecting portion having a mounting post insertion hole communicating therethrough;

the catch member being a generally rectangular plate having a mounting post hole communicating therethrough at one end of the long axis thereof, and a catch hole communicating therethrough at the other end of the long axis thereof, with the corners

nearest the mounting hole being rounded;

the door stop striker plate is generally square;

the door stop striker plate has a threaded mounting post extending from the edge of the plate on one side thereof that is inserted upward through the mounting post hole in the connection portion and through the mounting post hole in the catch member;

a mounting post nut, that is threaded for engagement with the mounting post, is placed on the mounting post and tightened;

whereby the angle of the door stop striker plate and the catch member, relative to the door, can be adjusted for doors that do not open exactly parallel to the bulkhead to ensure that when the door is opened, one of the flat generally square surfaces of the striker plate is in contact with the door bumper, and that the catch member can be engaged by the latch.

18. The door stop of claim 13 wherein the door stop member has an exterior surface with a pair of latch connection posts extending therefrom;

the latch connection posts each having a hole communicating therethrough and extending from the door stop member such that the latch connection posts directly oppose each other;

the latch has a latch member, a release lever, a release lever retention bolt, a torsion spring and a latch fastener pin;

the latch member having a long axis, a top, a bottom, a shank end, a latch end, a latch nub, and a pair of stop member connection posts;

the latch nub extending downward from the bottom of the latch member at the latch end, the edge of the latch nub corresponding to the latch end having a beveled face and the edge of the latch nub, opposite edge with the beveled face, having a face that extends at a right angle from the bottom of the latch member;

the stop member connection posts extending downward from the bottom of the latch member such that there is one stop member connection post on each side of the latch member and the stop member connection posts directly oppose each other;

each of the stop member connection posts having a hole communicating therethrough;

the latch member further having a release lever insertion hole near the shank end, and a release lever retention hole near the shank end;

the release lever insertion hole communicating from one side of the latch member to the other side of the latch member at a right angle to the long axis of the latch member;

the release lever retention hole communicating from the top of the latch member into the release lever insertion hole, the release lever retention hole being threaded;

the a release lever having an insertion end and a protruding end;

the insertion end being insertable into the release lever insertion hole from either side of the latch member;

the release lever retention bolt being threaded for engagement with the release lever retention hole;

the torsion spring being positioned between the stop member connection posts; the latch member being placed such that the stop member connection posts are adjacent to the latch connection posts and the torsion spring biases the shank end of the latch member upward from the door stop member; the latch fastener pin is inserted through the holes in the latch connection posts, the holes in the stop member connection posts, and the spring; the insertion end of the release lever is inserted into the release lever insertion hole such that the protruding end of the release lever is on the side of the latch mechanism that is away from the hinges of the door; the release lever retention bolt is threadedly engaged with the release lever retention hole such that the release lever is secured in the release lever insertion hole;

whereby when the door or hatch cover is opened and pressure is applied to the door or hatch cover, the striker plate makes contact with the door bumper thereby forcing the piston further into the door stop member while the catch member makes contact with the beveled face of the latch nub forcing the first end of the latch member upward and compressing the torsion spring, the latch nub then rides along the catch member until reaching a catch hole at which time the torsion spring biases the shank end of the latch member upward and forces the latch nub into the catch hole; and

when the pressure is released from the door the piston compression spring biases the piston outward from the first end of the stop member the face of the latch nub extending at a right angle from the bottom of the latch member is resting against the front interior

edge of the catch hole thereby locking the door in an open position.

19. The door stop of claim 13 wherein the door stop is constructed from a non-corrosive metal.